

01263.001778

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of:	)	Examiner: Huyen X. Vo
	:	
JEBU JACOB RAJAN	)	Group Art Unit: 2626
	:	
Appln. No.: 09/866,596	)	U.S. Patent No.: 7,035,790 B2
	:	
Filed: May 30, 2001	)	Issued: April 25, 2006
	:	
For: SPEECH PROCESSING SYSTEM	)	December 18, 2006

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

CERTIFICATE OF CORRECTION  
UNDER RULES 322 AND 323

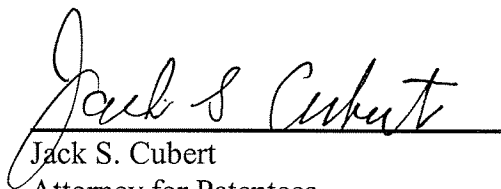
Sir:

It is respectfully requested that a Certificate of Correction be issued by the Patent and Trademark Office due to errors which appear in the printed patent as a result of Patent and Trademark Office mistakes, and mistakes of a clerical, typographical, or minor character, which were not the fault of the Patent and Trademark Office. A Certificate of Correction form, in duplicate, is enclosed.

Accompanying this letter is a check for \$100.00 to cover the statutory fee for such Certificate of Correction.

Patentees' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address given below.

Respectfully submitted,

  
Jack S. Cubert  
Attorney for Patentees  
Registration No. 24,245

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**CERTIFICATE OF CORRECTION**

PATENT NO. : 7,035,790 B2  
DATED : April 25, 2006  
INVENTOR(S) : JEBU JACOB RAJAN

Page 1 of 8

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

ON COVER PAGE AT (56) FOREIGN PATENT DOCUMENTS

“JP 2001/044926 2/2001” should read --JP 2001-044926 2/2001--.

ON COVER PAGE AT (56) OTHER PUBLICATIONS

Page 1, “Numerical Recipes in C by W. Press, et al., Chapter 7, Cambridge University Press (1992).” should be deleted.

Page 2, (first occurrence) delete:

““Reversible jump Markov chain Monte Carlo Computation and Bayesian model determination” by Peter Green, Biometrika, vol. 82, pp. 711-732 (1995).

“The Simulation Smoother For Time Series Models”, Biometrika, vol. 82, 2, pp. 339-350 (1995).

“Probabilistic inference using Markov chain Monte Carlo methods” by R. Neal. Technical Report CRG-TR-93-1, Department of Computer Science, University of Toronto (1993).

“Fundamentals of Speech Recognition,” Rabiner, et al., Prentice Hall, Englewood Cliffs, New Jersey, pp. 115 and 116, 1993.

“Bayesian Separation and Recovery of Convolutively Mixed Autoregressive Sources”, Godsill, et al., ICASSP, Mar. 1999.

“Statistical Properties of STFT Ratios for Two Channel Systems and Application to Blind Source Separation”, Balan, et al., IEEE Proc.-Vis. Image Signal Process., vol. 44, No. 4, Aug. 1997, pp. 429-434.

Bayesian Approach to Parameter Estimation and Interpolation of Time-Varying Autoregressive Interpolation of Time-Varying Autoregressive Processes Using the Gibbs Sampler, Rajan, et al., TEE Proc.-Vis. Image Signal Process., vol. 44, No. 4, Aug. 1997, pp. 249-256.

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Page 2 of 8

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

“An Introduction to the Kalman Filter”, Welch, et al., Dept. of Computer Science, University of North Carolina at Chapel Hill, NC, Sep. 1997.”;

After “Bayesian Separation and Recovery ...” (second occurrence): “Autoregssive” should read -- Autoregressive--;

After “Rajan, et al.”: “Bayesian” should read --“Bayesian--; and “Sampler,” should read --Sampler”,”--.

COLUMN 2

Line 14, “sion,” should read --sion;--.

COLUMN 4

Lines 31-37, “ $e(n) = s(n) - a_1s(n-1) - a_2s(n-2) - \dots - a_k s(n-k-1)$ ”

$$e(n-1) = s(n-1) - a_1s(n-2) - a_2s(n-3) - \dots - a_k s(n-k-1)$$

$$e(n-N+1) = s(n-N+1) - a_1s(n-N) - a_2s(n-N-1) - \dots - a_k s(n-k-N1) \quad (5)$$

should read

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Page 3 of 8

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

$$-- e(n) = s(n) - a_1 s(n-1) - a_2 s(n-2) - \dots - a_k s(n-k) \quad --.$$

$$e(n-1) = s(n-1) - a_1 s(n-2) - a_2 s(n-3) - \dots - a_k s(n-k-1)$$

$$e(n-N+1) = s(n-N+1) - a_1 s(n-N) - a_2 s(n-N-1) - \dots - a_k s(n-k-N+1) \quad (5)$$

### COLUMN 6

Lines 4-6, “

$$p(s(n)|a, k\sigma_e^2) = p(e(n)) \left| \frac{\partial e(n)}{\partial s(n)} \right|_{e(n)=s(n)-Sa}$$

”

should read

$$-- p(s(n)|a, k, \sigma_e^2) = p(e(n)) \left| \frac{\partial e(n)}{\partial s(n)} \right|_{e(n)=s(n)-Sa} \quad --.$$

### COLUMN 7

Line 29, “ $(a_a)$ ,” should read  $--(\sigma_a^2), --;$

Line 37, “ $a_a$ ,” should read  $--\mu_a, --;$

Line 38, “ $p(a_a)$ ” should read  $--p(\mu_a) --;$

Line 41, “ $(a_a)$ ” should read  $--(\mu_a) --;$

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Page 4 of 8

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Line 44, " $p(a_a)$ " should read --  $p(\underline{\mu}_a)$  --; and

Line 45, " $\mu_a$ " should read --  $\underline{\mu}_a$  --.

COLUMN 8

Line 15, " $(a_h)$ ," should read --  $(\underline{\sigma}_h^2)$ , --;

Line 23, " $p(a_h)$ " should read --  $p(\underline{\mu}_h)$  --;

Line 29, " $p(a_h)$ " should read --  $p(\underline{\mu}_h)$  --;

Line 30, " $a_a$ " should read --  $\underline{\mu}_a$  --;

Line 34, " $\alpha h d$ " should read --  $d_h$  --; and

Line 67, " $h, r, \sigma_a^2, \sigma_h^2, \sigma_e^2 \cdot s(n) | y(n)$ " should read  
--  $h, r, \sigma_a^2, \sigma_h^2, \sigma_e^2 \cdot s(n) | \underline{y}(n)$  --.

COLUMN 9

Line 9, " $p(a, k | h^1, r^1, \sigma_e^{2^1}, \sigma_\epsilon^{2^1}, \sigma_h^{2^1}, s(n)) \rightarrow a^2, k^2$ " should read  
--  $p(a, k | h^1, r^1, \sigma_e^{2^1}, \sigma_\epsilon^{2^1}, \sigma_h^{2^1}, s(n)^1, ) \underline{y}(n)) \rightarrow a^2, k^2$  --.

COLUMN 10

Line 20, " $a$ " (both occurrences) should read --  $\underline{a}$  --.

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Page 5 of 8

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

COLUMN 11

Lines 58-59, " $\hat{\alpha}_d = \frac{N}{2} + \alpha_a$  and  $\hat{\beta}_a = \frac{2\beta_a}{2 + \beta_a \cdot (a + \underline{\mu}_a)^T (a - \underline{\mu}_a)}$  (29)" should  
read --  $\hat{\alpha}_d = \frac{N}{2} + \alpha_a$  and  $\hat{\beta}_a = \frac{2\beta_a}{2 + \beta_a \cdot (a - \underline{\mu}_a)^T (a - \underline{\mu}_a)}$  (29) --.

COLUMN 12

Lines 3-4, " $\hat{\alpha}_h = \frac{N}{2} + \alpha_h$  and  $\hat{\beta}_h = \frac{2\beta_h}{2 + \beta_h \cdot (a + \underline{\mu}_h)^T (a - \underline{\mu}_h)}$  (30)" should  
read --  $\hat{\alpha}_h = \frac{N}{2} + \alpha_h$  and  $\hat{\beta}_h = \frac{2\beta_h}{2 + \beta_h \cdot (h - \underline{\mu}_h)^T (h - \underline{\mu}_h)}$  (30) --;

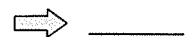
Line 8, " $(\sigma_h^2)^g$  ." should read --  $(\sigma_a^2)^g$  .--; and

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Page 6 of 8

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Lines 54-55, " $MO = \max \left\{ \frac{p(a_{<1:k_2>}, k_2 | \dots)}{p(a_{<1:k_2>}, k_1 | \dots)}, 1 \right\}$ " should read

$$-- MO = \max \left\{ \frac{p(a_{<1:k_2>}, k_2 | \dots)}{p(a_{<1:k_1>}, k_1 | \dots)}, 1 \right\} --.$$

COLUMN 13

Line 2, " $a$ " (third occurrence) should read --  $\tilde{a}$  --;

Lines 59-64, " $\tilde{A} = \begin{bmatrix} a_1 & a_2 & a_3 & \dots & a_j & 0 & \dots & 0 \\ 1 & 0 & 0 & \dots & 0 & 0 & \dots & 0 \\ 0 & 1 & 0 & \dots & 0 & 0 & \dots & 0 \\ \vdots & & & \ddots & & & & \\ 0 & & & & & & 1 & 0 \end{bmatrix}_{rxr}$ " should read

$$-- \tilde{A} = \begin{bmatrix} a_1 & a_2 & a_3 & \dots & a_k & 0 & \dots & 0 \\ 1 & 0 & 0 & \dots & 0 & 0 & \dots & 0 \\ 0 & 1 & 0 & \dots & 0 & 0 & \dots & 0 \\ \vdots & & & \ddots & & & & \\ 0 & & & & & & 1 & 0 \end{bmatrix}_{rxr} --.$$

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Page 7 of 8

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COLUMN 14

Line 26, "equal" should read --equal to--.

COLUMN 15

Line 11, " $\mathbf{a}(t) \sim N(0, C(t))$ " should read -- $\mathbf{n}(t) \sim N(0, C(t))$ --;

Line 15, " $\mathbf{r}(t-1) = \mathbf{h}d(t)^{-1}w(t) + L(t)^T \mathbf{r}(t) - V(t)^T C(t)^{-1} \mathbf{a}(t)$ " should read  
-- $\mathbf{r}(t-1) = \mathbf{h}d(t)^{-1}w(t) + L(t)^T \mathbf{r}(t) - V(t)^T C(t)^{-1} \mathbf{n}(t)$ --;

Lines 19-20, " $\tilde{\mathbf{e}}(t) = \alpha_e^2 \mathbf{r}(t) + \mathbf{a}(t)$  where

$$\tilde{\mathbf{e}}(t) = [\tilde{\mathbf{e}}(t)\tilde{\mathbf{e}}(t-1)\tilde{\mathbf{e}}(t-2) \cdots \tilde{\mathbf{e}}(t-r+1)]^T "$$

should read

-- $\tilde{\mathbf{e}}(t) = \alpha_e^2 \mathbf{r}(t) + \mathbf{n}(t)$  where

$$\tilde{\mathbf{e}}(t) = [\tilde{\mathbf{e}}(t)\tilde{\mathbf{e}}(t-1)\tilde{\mathbf{e}}(t-2) \cdots \tilde{\mathbf{e}}(t-r+1)]^T --; \text{ and}$$

Line 24, " $\mathbf{a}(t)$ " should read -- $\mathbf{n}(t)$ --.

COLUMN 20

Line 58, "the" (first occurrence) should be deleted.

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Page 8 of 8

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COLUMN 29

Line 61, "mode" should read --model--.

COLUMN 33

Line 16, "speech" should read --a speech--.

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